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March 6, 2008
Project No. 8128.01.12

Mr. Dana Bayuk
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201-4987

Re: DEQ Comments on Siltronic FFS
Siltronic Corporation
7200 NW Front Avenue, Portland, OR
ECSI #183

Dear Dana:

Siltronic Corporation (Siltronic) received comments from the Oregon Department of Environmental Quality (DEQ) regarding the Focused Feasibility Study (the Siltronic FFS, submitted October 23, 2007) on February, 14, 2008. The Siltronic FFS was prepared and submitted consistent with the requirements of the *Order Requiring Remedial Investigation and Source Control Measures*, DEQ No. VC-NWR-03-16 (the TCE Order). A detailed response is included (Attachment 1).

Siltronic believes it can satisfy the requirements of the TCE Order by implementing source control measures (SCMs) for trichloroethene (TCE) and its degradation products (specifically, cis-1,2-dichloroethene (DCE) and its isomers, and vinyl chloride) as recommended in the Siltronic FFS. Siltronic believes that the recommended approach described in the Siltronic FFS should be implemented for following reasons:

- Comprehensive treatment of TCE and its degradation products at the riverbank such that source control objectives are met.

- Treatment of TCE and its degradation products at the point of exposure, which maximizes environmental benefit, and meets the objective of integrating upland source control with anticipated in-river early actions.

- Simplification of waste handling issues for the hydraulic containment alternative recommended by NW Natural (NWN) by removing TCE and its degradation products from the waste stream, and enhancing sustainability.

Siltronic regrets that the DEQ appears to be rejecting Siltronic's recommended approach. Siltronic arrived at its conclusions after careful study and discussion with both the DEQ and the US Environmental Protection Agency (EPA). Siltronic hopes that both the DEQ and EPA will modify their position after considering the points expressed in Attachment 1, and following further discussion with Siltronic.

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Notwithstanding Siltronic's concerns regarding DEQ's expressed position, Siltronic remains committed to a proactive approach toward completion of its cleanup obligations. Siltronic intends to continue to work closely with the DEQ to comply with the TCE Order and will continue to make its best efforts to cooperate with NW Natural during implementation of its SCM. We urge DEQ to reconsider its position, but will move forward to comply with any directive that does not threaten Siltronic's manufacturing operations.

In its letter to DEQ dated February 15, 2008, Siltronic stated that additional time was needed (beyond the 45 days indicated by DEQ) to submit a plan for scaling up EIB in the source area, due in part to the need for a meeting with the DEQ to resolve certain issues. Siltronic believes it would be useful for a representative of the EPA to attend the meeting as well. Siltronic would like to meet as soon as possible to discuss source control requirements with the DEQ.

Please call either of us at (971) 544-2139 if you have questions or comments.

Sincerely,

Maul Foster & Alongi, Inc.

James G.D. Peale, R.G.
Senior Hydrogeologist

James J. Maul, R.G.
Principal Hydrogeologist

Attachment 1 – Detailed Response to Comments

cc: Tom McCue, Siltronic
Chris Reive, Jordan Schrader
Alan Gladstone and William Earle, Davis Rothwell Earle & Xochihua, P.C.
Bob Wyatt, NW Natural
Sandy Hart, NW Natural
Patty Dost, Schwabe Williamson & Wyatt
John Edwards, Anchor Environmental, LLC
Eric Blischke, EPA
Rene Fuentes, EPA
Chip Humphries, EPA
Kristine Koch, EPA
Dick Pederson, DEQ/NWR
Jim Anderson, DEQ/PHS
Tom Gainer, DEQ/PHS
Henning Larsen, DEQ/SRS
Matt McClincy, DEQ/PHS

Attachment 1

Detailed Response to DEQ's Comments on the Siltronic Focused Feasibility Study

March 6, 2008

The following includes responses to DEQ's comments on the Siltronic FFS. Where appropriate, text from DEQ's comment letter is included in quotations.

1) Page 3, last paragraph. "Siltronic acknowledges that Area 2 will require in-water removal action(s) that are beyond the scope of the VOC Plume FFS." The Siltronic FFS (Section 2, page 2-1) states that Area 2 will require "in-river remedies", which could include capping or monitored natural recover (MNR), which along with dredging are the alternatives under evaluation by EPA and the Lower Willamette Group.

2) Page 3, last paragraph. DEQ states that impacts to the Willamette River requiring removal/remedial actions are subject to oversight by EPA. DEQ should recall that the concept of upland treatment of the cVOC plume under the river was reviewed and discussed at meetings with both DEQ and EPA in 2005. At that time, EPA indicated that upland treatment of the in-river impacts in Area 1 would likely fall within DEQ's authority, notwithstanding EPA's oversight. Siltronic subsequently proceeded in good faith on that premise to develop and test an approach that would meaningfully control in-river impacts by elimination of the upland source.

3) Page 4. The Gasco FFS states that it was submitted consistent with the requirements of the Voluntary Agreement between DEQ and NWN, as amended. Similarly, Siltronic's FFS was submitted consistent with the requirements of TCE Order. Since these documents are sufficiently broad to compel both companies to address their respective contaminants, it is unclear why DEQ now chooses to raise the Joint Order as the source of both companies' performance obligations. When the Joint Order was issued, neither DEQ nor the respective parties knew of the TCE release. If the Joint Order already addressed the TCE issues, why did DEQ issue the TCE Order? Similarly, DEQ amended NW Natural's Voluntary Agreement in July 2006 as a vehicle for enforcement of NW Natural's obligations for MGP waste on Siltronic property. Under those Orders, Siltronic is not responsible for the MGP-related impacts, and NWN is not responsible for cVOC impacts. The Joint Order no longer serves its initially intended function, and appears to have been superseded by the subsequent instruments.

4) Page 4. Regarding DEQ's reliance on terms of the JSCS, Siltronic notes that page iii of the JSCS includes the statement that "upland source control actions and in-water cleanup actions should be integrated, where appropriate." Siltronic's

recommended approach represents integration of upland source control and in-water remediation of Area 1. DEQ's selected alternative adopts a narrower view of source control, conceding that containment is sufficient, even where downgradient contamination could be eliminated at the point of potential in-river exposure.

5) Page 4. DEQ states: "Currently, EPA and DEQ consider the off-shore areas of the Siltronic and NW Natural properties to be a potential candidate for early action." Whatever may be DEQ's understanding of EPA's intent with regard to Early Action (EA), DEQ has shared no document or form of EA proposal with Siltronic. In the absence of this information, Siltronic has demonstrated the feasibility of an integrated approach for upland and in-river cleanup consistent with the goals of the JSCS and the presently available guidance for the site.

6) Page 4. DEQ states: "DEQ has also determined it will be unlikely that the uplands RI and feasibility study (RI/FS) of the Siltronic and NW Natural properties will be complete by the time the Record of Decision [ROD] for Portland Harbor has been finalized. As such, DEQ has established short-term source control goals…" Siltronic's recommended source control would be implemented by the time the Record of Decision for the Portland Harbor is completed. Siltronic acknowledges that the current optimistic projection for the ROD is 2010. However, prioritizing short-term goals could have a net effect of limiting long-term options – for example, under DEQ's recommended approach, Siltronic will be locked into a long-term remedy that could otherwise be avoided or minimized.

7) Page 4. One of the short-term goals established by DEQ is "evaluating and selecting SCMs that effectively mitigate contaminant migration to the river." It is not clear that implementation of a relatively shallow containment alternative (hydraulic containment with a barrier wall above the cVOC plume) will mitigate contaminant migration from groundwater to surface water via the transition zone. Another goal stated by DEQ is "implement[ing] SCMs in coordination with EPA, but in advance of an in-water early action." Since no EA has yet been ordered and its scope and schedule not established, Siltronic respectfully submits that it is time for joint meetings with DEQ and EPA for discussion of properly sequenced and coordinated SCMs.

8) Page 4. DEQ states: "DEQ has informed Siltronic and NW Natural that during the time it takes to complete uplands work [which DEQ acknowledges will not occur until 2010, see note 6], it is essential for the companies to select and implement compatible SCMs to meet the requirements." The deadline for source control implementation appears to be 2010. The Siltronic FFS has demonstrated that implementation of EIB at the riverbank in 2008 will be compatible with installation of a containment measure as recommended by NWN by 2010.

9) Page 5. Siltronic notes that Stratus Consulting (on behalf of certain Tribes) did not review documents previously submitted in support of the FFS (including the Initial Source Control Technology Evaluation, the Pilot Study Workplan, the RI Report, the EIB Pilot Study Report, and the Desorption Bench Test Report) which would have facilitated the review. It is not clear why these documents were not reviewed. Additionally, and contrary to the numerous statements in the letter from Stratus, the Siltronic FFS was reviewed and approved by a professional engineer (PE) registered in Oregon. Further, Siltronic is surprised that there were no comments from EPA since DEQ has informed us that the delay in DEQ's comment letter was due in part to time required to incorporate feedback from EPA.

10) Page 6. DEQ states: "The selection of control and containment SCMs will be an outcome of DEQ's review of the MGP DNAPL/Groundwater FFS." As Siltronic has previously stated in written comments to DEQ, NWN's FFS was too quick to dismiss other feasible, proven, demonstrated containment technologies, such as drilled/cast secant pile walls, is a significant omission. Siltronic wishes to reiterate its understanding that DEQ will require detailed evaluation of barrier wall technologies other than sheet pile if DEQ requires a barrier wall on Siltronic property.

11) Page 6. DEQ states: "DEQ acknowledges data that suggest EIB reduces free cyanide concentrations in groundwater, however the pilot study confirms that EHC/KB-1 has little if any influence on MGP contamination." Cyanide at the site is representative of MGP contamination.

12) Page 6. DEQ states that implementation of EIB at the riverbank was contingent upon Siltronic's meeting certain conditions, regarding schedule and reduction in risk relative to implementation risk.

- With respect to the schedule, DEQ has referred to NWN's proposed schedule as "aggressive," yet has not allowed Siltronic an opportunity to address coordination in a more realistic time frame. Allowing the schedule to incorporate time for EIB to work will yield the maximum environmental benefit. Siltronic respectfully suggests that further scheduling discussion is warranted and should include EPA.

- With respect to reduction in ecological risk relative to implementation risk, reducing known cVOC concentrations in groundwater beneath the river and at the point of exposure in the river represents a significant reduction in potential exposure and the goal of groundwater source control. The potential risk associated with an increase in dissolved iron concentrations is small, especially in light of the fact that iron is not a JSCS contaminant of interest.

13) Page 6. DEQ states that under "the JSCS, the focus of assessing SCM alternatives is upland source control and not in-water remediation." That viewpoint narrowly restricts source control to containment rather than elimination of the source, and disregards the fact that the overriding purpose of source control is to prevent continuing impacts to the river at the point of potential exposure. Upland containment alone will not accomplish that purpose with respect to groundwater already beneath the river and transition zone water.

14) Page 7. Siltronic agrees that removal action objective (RAO) #2 influences the evaluation of upland SCMs. This RAO was communicated to DEQ in the FFS Workplan (June, 2007). DEQ had not previously rejected RAO #2. Siltronic believes this to be a worthwhile RAO, and wishes to stress that alternatives that meet more RAOs rather than fewer are intrinsically superior. Moreover and consistent with the TCE Order, removal of MGP-related COIs is not an RAO for which Siltronic should be responsible. Such a requirement is markedly different than a need to coordinate efforts with NWN, which has always been among Siltronic's goals.

15) Page 7. DEQ states: "Many SCM alternatives that include containment as a component are judged less effective because they may alter advection of treated groundwater downgradient under the river, not because they are less effective in controlling contaminant migration from the uplands to the river." Even if the effectiveness score for Alternative 2B (or 5) is raised to 4 (completely meets criterion), its overall score is still less than Alternative 3A. DEQ should consider that none of the containment alternatives will significantly reduce contaminant concentrations in the groundwater beneath the river (beyond capture zones) or at the point of exposure in the transition zone. In contrast, Siltronic has demonstrated that of the alternatives under consideration, EIB has the best potential to do so.

16) Page 7. DEQ states: "Dissolved MGP constituents will continue to migrate to the river regardless. As discussed during previous Siltronic-DEQ meetings, there are alternative SCMs being evaluated, including hydraulic control/containment, that can intercept and control migration of groundwater contaminated by VOCs and MGP-related constituents, reducing total contaminant flux to the river as a result." Siltronic respectfully submits that reducing total contaminant flux from groundwater to transition zone (TZW) or surface water should be the overarching goal of source control. Siltronic has demonstrated that EIB at the riverbank has the best potential to do this for cVOCs. In contrast, upland containment (especially with a barrier wall) is unlikely to alter groundwater-surface water interactions (and therefore contaminant flux) at distances beyond the estimated radius of influence (approximately 100 feet, based on the analysis shown on Figure 8 of the Gasco FFS).

17) Page 7. DEQ states: "If EIB is implemented along the top of the riverbank, this would necessitate moving alternative SCMs (e.g., vertical barrier and/or extraction wells) closer to Fab 1." Siltronic respectfully disagrees. If properly sequenced, a vertical barrier can be placed immediately within the EIB PRB (similar to the alignment shown on Gasco FFS Figure 11). Extraction wells can be located well upgradient to mitigate potential (but if given proper sequencing, unlikely) fouling issues. Regardless, based on the size of the equipment and anticipated vibrations, it is unlikely that a distance of 25-50 feet will significantly attenuate vibrations associated with sheet pile wall installation, if that technology is ultimately selected as part of the SCM along the Siltronic riverbank. As stated in the Siltronic FFS, if properly sequenced, space limitations are not an issue.

18) Page 7. Siltronic appreciates DEQ's reporting of the NWN data from MW-05-100. These data, from samples collected in June 2007, were not made available to Siltronic until the final Gasco FFS submittal, which occurred after the Siltronic FFS submittal. The detection of cis-1,2-DCE is approximately 4-5x what has historically been detected in WS-14-125 (located on the Siltronic property). Based on the high concentration, and the fact that vinyl chloride was not detected in this sample, the validity and representativeness of the single result remains questionable. Regardless, in light of Siltronic's position regarding DEQ's selected source control measure and the recommendation for a properly sequenced approach, the detection does not indicate the potential for interference with a containment measure.

19) Page 8. DEQ states: "Alternative 3 requires that hydraulic capture/control SCMs be postponed for at least one year." Siltronic proposed an accelerated schedule for EIB implementation at the riverbank that would allow a containment measure to startup one year after EIB installation. That proposed schedule would allow containment measure startup in March 2009, which represents a delay of 4 months. That proposed delay was also based on our expectation of DEQ and EPA's review time. Siltronic wishes to register its continuing disappointment in DEQ's response time, but recognizes the limitations on DEQ staff time resulting from multiple demands and vacant positions.

20) Page 8. DEQ states: "During this time [one year] Siltronic indicates that treated groundwater will advectively migrate downgradient and reduce [c]VOC concentrations in TZW to less than JSCS criteria…The one year timeframe essentially translates into an expectation that groundwater and TZW under the river will be addressed after flushing the VOC Plume with a single pore volume of treated groundwater. In situations where the objective is to reduce VOC concentrations in groundwater from part per million to low part per billion levels, it is reasonable to anticipate multiple pore volume flushes being needed." The Siltronic FFS does not estimate that TZW in Area 1 will be reduced to less than

JSCS SLVs in one year. Based on conservatively low groundwater flow velocities and the demonstrated performance of the EIB PRB, approximately one year from injection will be required for a treated front of groundwater to reach the center of Area 1 and travel beyond the estimated influence of the containment SCM. Within this timeframe, Siltronic's approach will meet the remedial action objective (RAO #2) of significantly reducing TZW concentrations in Area 1, with accelerated natural or enhanced attenuation. DEQ's expectation regarding multiple pore volume flushes does not impact the proposed schedule for Siltronic's recommend alternative.

21) Page 8. DEQ states: "The results of aquifer testing indicate that the K_h value used by Siltronic could underestimate projected remediation timeframes by many times." As discussed in the FFS, a conservatively low K_h was used to estimate groundwater velocities. The K_h data were primarily based on slug test data (which as noted elsewhere by DEQ and supported by Stratus, tend to *underestimate* Kh), with a mean value of 208 feet/day. This value corresponds quite well with the data collected during aquifer testing by NWN and used for development of the groundwater model used in support of the containment measure. However, Siltronic used a lower, more conservative value for the analysis. If slug tests are expected to underestimate K_h values, the true values are likely to be higher, so that average linear velocities are also likely to be higher. DEQ's conclusion that Siltronic has underestimated remediation timeframes due to underestimates of groundwater velocity is not consistent with the data.

22) Page 8. DEQ states with respect to residual iron concentrations related to EIB: "To address outstanding issues DEQ would require Siltronic to verify their conclusion by collecting additional data to support a site-specific analysis. The time needed to complete such a study is currently not factored into Siltronic's schedule." Siltronic has continued to collect relevant data. Please see the attached Figure 1, which is a chart of iron concentrations in the RPSA pilot study wells. As demonstrated by this additional and new data, and consistent with the Siltronic FFS projections, iron impacts to the aquifer are not a schedule-related implementation risk. DEQ must realize schedule delays will occur for alternative containment measures and other time-consuming site-specific studies. Such studies include the vibration test analysis and evaluation of other implementation risks that Siltronic has raised previously.

23) Page 9. Regarding potential surface water impacts from riverbank EIB implementation, please also see Figure 1. With respect to iron fouling, the Gasco FFS acknowledges that elevated iron concentrations are a concern, and includes contingency pre-treatment for iron in both Segment 1 and Segment 2. DEQ's position that EIB should not be implemented because of an increased risk of iron fouling is inconsistent with their recommendation for groundwater extraction in

Segment 2 (where background iron concentrations are much higher than Segment 1, and are likely to cause fouling). Further, DEQ has not considered that a sheet pile wall is likely to be a source of iron (via oxidation) and resulting fouling. A site-specific evaluation of sheet-pile corrosion rates and resulting increases in iron concentrations should be considered. As previously recommended by Siltronic, a phased approach starting with implementation in Segment 2 to evaluate potential fouling issues (irrespective of EIB impacts) could provide both site-specific fouling data and the time required for sequencing.

24) Page 9. DEQ states: "Iron has been of particular interest because of the amount present in EHC (50% by weight) and the quantity of EHC needed to implement EIB along the riverbank (estimated to be 600,000 pounds or more based on the amount used in the RBPSA)." As described in the Siltronic FFS, the quantity of EHC to be applied represents approximately 1% of the soil mass, and the quantity of iron to be applied represents approximately 0.5% of the soil mass, which are relatively small amounts.[1]

25) Page 9. DEQ states: "The data suggest to DEQ that iron concentrations have remained elevated at WS11-125, are migrating downgradient, and the reasons (e.g., geochemical, hydrogeological) are not yet understood." Again, please see Figure 1. With respect to downgradient migration, due to its high reactivity, iron from the EIB PRB is unlikely to migrate in groundwater for significant distances.[2] Elevated iron in WS-11-125 is likely due to enhanced solubility of iron related to chelation by dissolved organic carbon in the form of degraded aromatic structures such as benzene and naphthalene.

26) Page 9. DEQ states that Siltronic should move forward with efforts to contribute to implementation of a containment and control SCM "…with particular attention paid to portions of the VOC Plume that could occur outside the capture zone of a hydraulic capture/containment system (e.g., upstream of the WS11 monitoring well cluster)" Based on the Gasco FFS, it does not appear that cVOCs upstream of the WS-11 well pair will be outside the zone of capture by the proposed hydraulic containment system. However, Siltronic has previously expressed concerns regarding the accuracy of the groundwater model used to predict capture. Even if the model is accurate, Siltronic has other concerns. For example, the Gasco FFS predicts the groundwater elevations beneath Fab 1 and the former TCE UST area will drop by approximately 20-40 feet, which raises concerns regarding soil stability. NWN and DEQ should fully considered the implementation risks associated with groundwater extraction, as outlined in

[1] The volume of iron from EHC is approximately 10,000 cubic yards, which is miniscule compared to the volume of spent-oxide iron from MGP waste disposal operations.
[2] As documented in the analysis provided to DEQ in MFA's December 19, 2007 letter regarding Focused Feasibility Study Coordination.

Siltronic's comments to that effect prior to submittal of the Gasco FFS.[3] Additional modeling is warranted, with resulting delay in implementation of the containment measure.

27) Page 9, last paragraph (first bullet), in which DEQ specifies revision of the RAOs for implementation of EIB in the former UST area, DEQ refers to a later bullet point. It appears that DEQ intended to refer to the fourth bullet on page 10, which addresses downgradient expansion of the cVOC plume. If DEQ desires to minimize the potential expansion of downgradient distributions of cis-1,2-DCE and vinyl chloride in order to facilitate management of potential F002 wastes, Siltronic might agree to additional EIB implementation on the downgradient side of Fab 1.

28) Page 9. Regarding the revised RAOs stated by DEQ, reducing cVOC concentrations to below JSCS SLVs at the shoreline cannot be demonstrated given implementation of a containment measure, especially if a barrier wall is not implemented. In that scenario, it is likely that downgradient impacts will be drawn back toward Fab 1 from underneath the river, confounding performance monitoring that would be required to document achieving the RAOs. The RAOs in the Siltronic FFS are achievable and can be documented (using performance monitoring) under Siltronic's recommended approach. However, under DEQ's selected containment alternative, and consistent with NWN's recommendations, no performance monitoring downgradient of the riverbank will be possible (and indeed is not proposed). It is unclear how NWN's proposal for performance monitoring using only a groundwater model will be sufficient. If modeling is acceptable for demonstrating achievement of the RAOs, Siltronic will also have to apply that approach to meet DEQ's revised RAO.

29) Page 10. Siltronic notes an error in the TCE solubility calculation on page 10. 1% of the aqueous solubility is approximately 11 milligrams per liter (mg/l, or ppm).

30) Page 10. With respect to meeting a revised RAO "under the hydraulic gradients imposed by a series of extraction wells located near the top of the riverbank," NWN has not demonstrated that the model prepared to support proposed containment measures accurately predicts gradients or hydraulic conditions. Further modeling would be needed to provide additional detail required for Siltronic to meet the revised RAO.

31) Page 10, third bullet. Please see note 29, above.

[3] As documented in MFA's August 30, 2007 letter to DEQ regarding Coordinated Focused Feasibility Study issues.

32) Page 10. DEQ states: "…concentrations of *cis*-1,2-dichloroethene (*cis*-1,2-DCE) were maintained and vinyl chloride (VC) concentrations increased by orders of magnitude." As shown on the attached Figure 2, concentrations of cis-1,2-DCE have significantly declined in the source area PRB wells (WS-19-71/101), by approximately three orders of magnitude. Consistent with the analysis in the Pilot Study Report, vinyl chloride concentrations have begun to decline and will continue to do so.

33) Page 10. DEQ states: "The data also indicate that application of EHC/KB-1 further downgradient of the Former UST System may be warranted, the goal being to have degradation product concentrations on established declining trends downgradient of the treatment zone(s)." The Siltronic FFS recommends application of EIB in the majority of the accessible area downgradient of the former UST system in the source area (see Figure 2-3 from the FFS). Since EIB has been proposed up to approximately 10 feet of the upgradient wall of Fab 1, DEQ's comments suggest that additional application of EIB downgradient of Fab 1 could be appropriate. In light of DEQ's rejection of riverbank EIB, Siltronic might agree with this suggestion and could include application of a low-density EIB PRB along the downgradient perimeter of Fab 1 as a polishing step for any potential downgradient cis-1,2-DCE or vinyl chloride resulting from source area EIB implementation. This requires further discussion.

34) Page 10, last bullet. DEQ states: "In addition, F002 constituents may be present in investigation derived and remediation waste." The potential presence of F002 constituents could be mitigated or eliminated with the application of EIB along the downgradient perimeter of Fab 1 prior to containment implementation. This step would significantly simplify coordination between Siltronic and NWN. As shown on the attached Figure 3, concentrations upgradient of the RPSA have significantly decreased, such that an F002 listing may not be relevant for groundwater extracted from the containment SCM.

35) Page 11, first bullet. 2-butanone is a byproduct of anaerobic fermentation of organic carbon. 2-butanone is a naturally-occurring compound present in many fruits and vegetables. The tap water preliminary remediation goal (PRG) is 7,100 ug/L. This level has never been exceeded in any of the pilot study wells. Increasing trends are not evident at the riverbank.

36) Page 11, third bullet. DEQ states: "It is unclear to DEQ whether 'soil' referenced in Section 2.3.2.1 refers to unsaturated or saturated soil, or both." The Siltronic FFS does not recommend EIB implementation in unsaturated soil. TCE and its degradation products are not present in unsaturated soil at significant concentrations. As discussed in the RI Report, groundwater levels are at higher elevations than the bottom of the former UST system, which was overexcavated and backfilled with pea gravel.

In sum, DEQ cites to anticipated scheduling delays and implementation risk associated with increased iron in groundwater as technical reasons for rejecting EIB at the riverbank. With respect to schedule, DEQ refers to multiple deadlines:

- The Gasco FFS schedule, which DEQ characterized in meetings as an aggressive projection at best, must be considered in light of the additional evaluation and modeling required to demonstrate effectiveness before it can be applied to quantify implementation risk stemming from Siltronic's proposed EIB approach.

- The projected schedule for the ROD (2010) which is not threatened by sequenced SCMs.

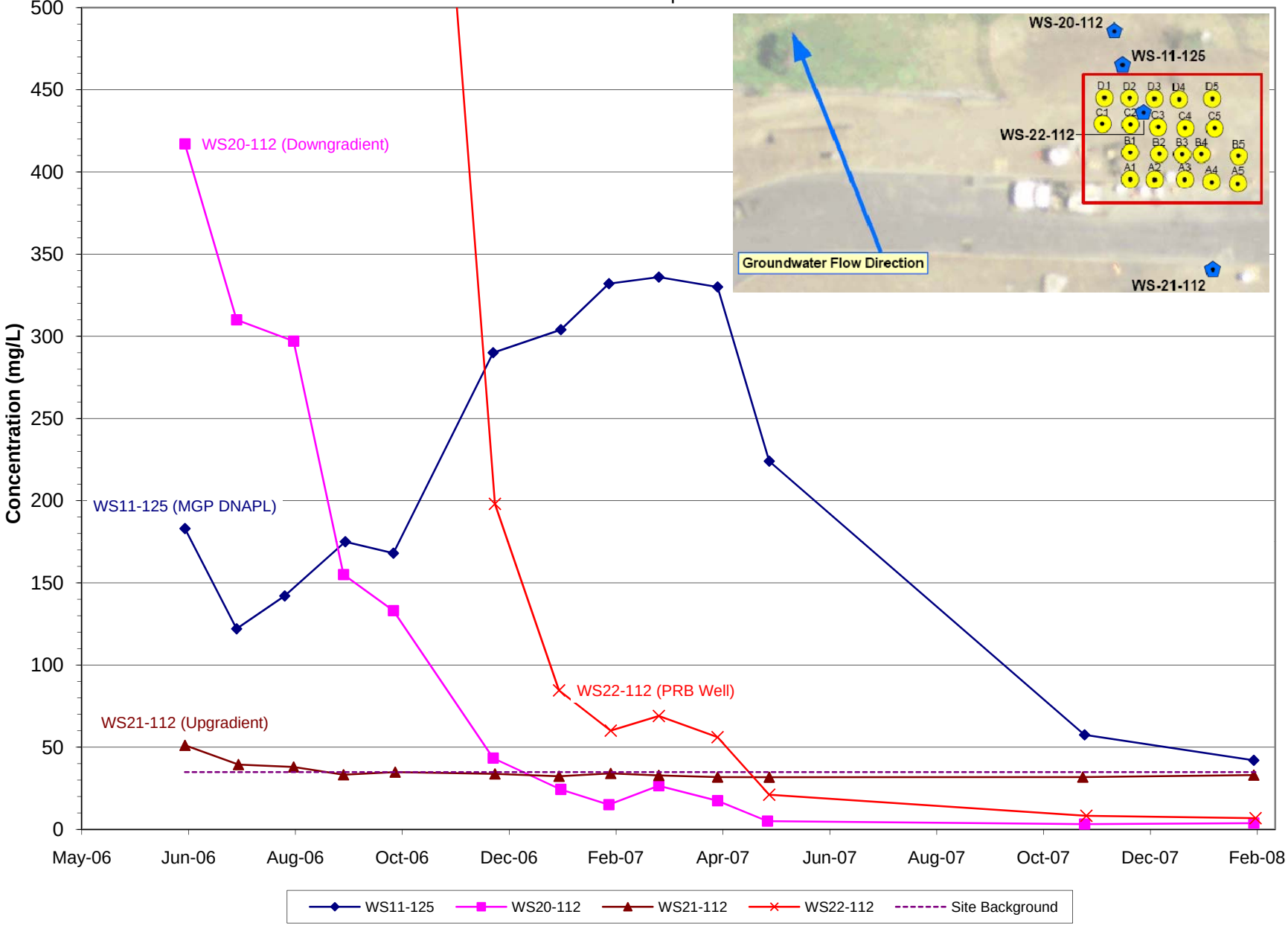
- The unspecified date of an in-water EA, which must be evaluated in light of a likely implementation time table, considering administrative precursors and potential coordination issues with the operation of the Arkema EA, fish windows and access to the sediment areas.

At this time, the ROD date appears to be the best milestone. There is sufficient time between now and 2010 for proper sequencing of the alternatives as recommended in the Siltronic FFS.

With respect to implementation risk associated with increased iron, it should be clear that reduction of cVOC concentrations represents a significant net reduction of risk relative to the unlikely potential for increased iron in TZW. Due to its reactivity, and based on data from other CERCLA sites[4], downgradient distribution of iron to surface water from groundwater over a distance in excess of 200 feet is highly unlikely. The distance from the proposed riverbank EIB to Area 1 is 225 feet. With respect to potential fouling, the attached data show that iron concentrations will return to background levels within six to twelve months of implementation, which leaves ample time for downgradient treatment of the cVOC plume **and** implementation of the containment measure without an increased risk of fouling.

[4] E.g., the Warren AFB Superfund site, as noted in MFA's December 19, 2007 letter referenced previously.

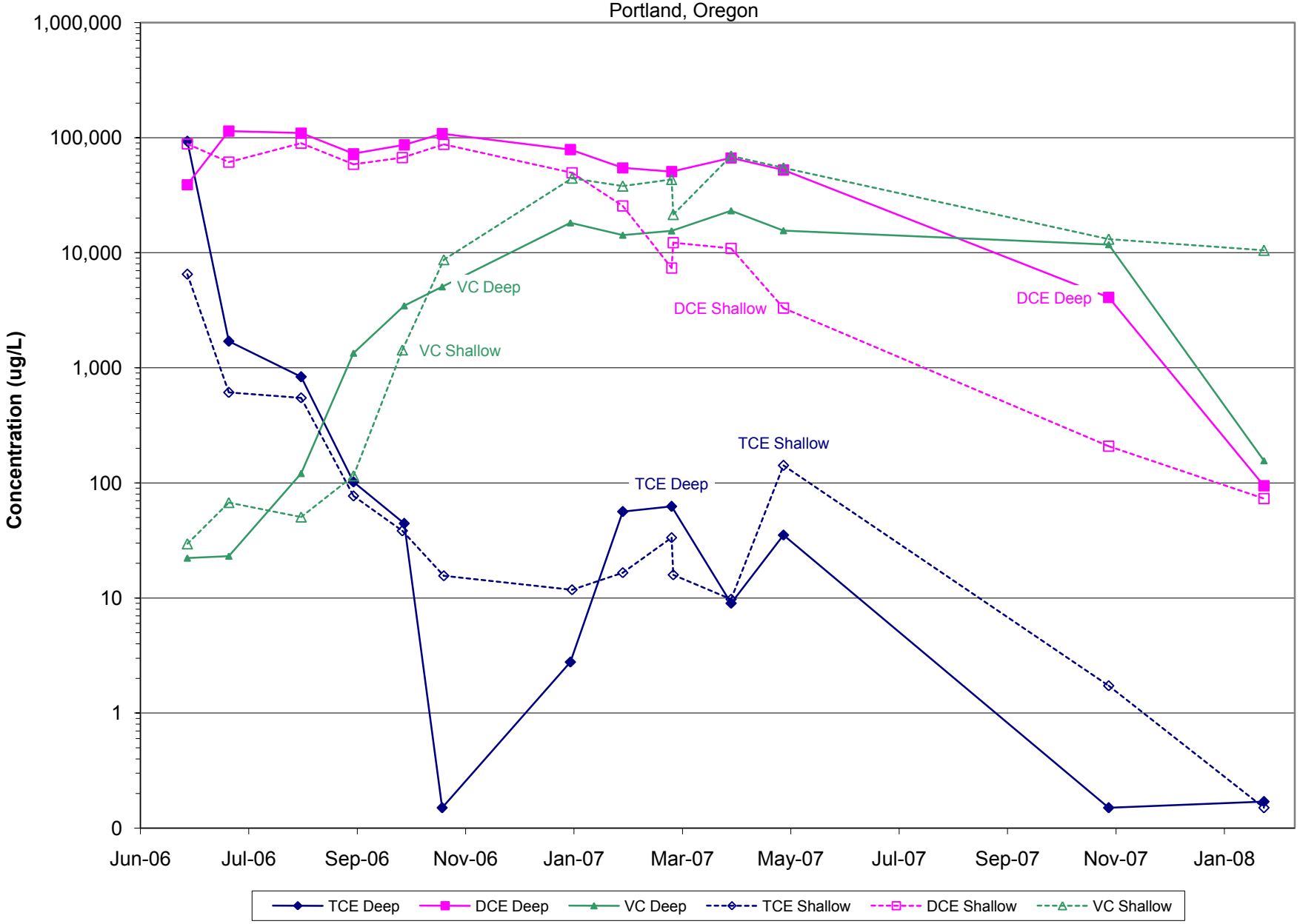
Figure 1
Iron Concentrations in Groundwater
RPSA Wells
Siltronic Corporation



R:\8128.01 Siltronic Corp\Correspondence\12_FFS Response to Comments 3.6.08\response support data-Figures 1-3.xls

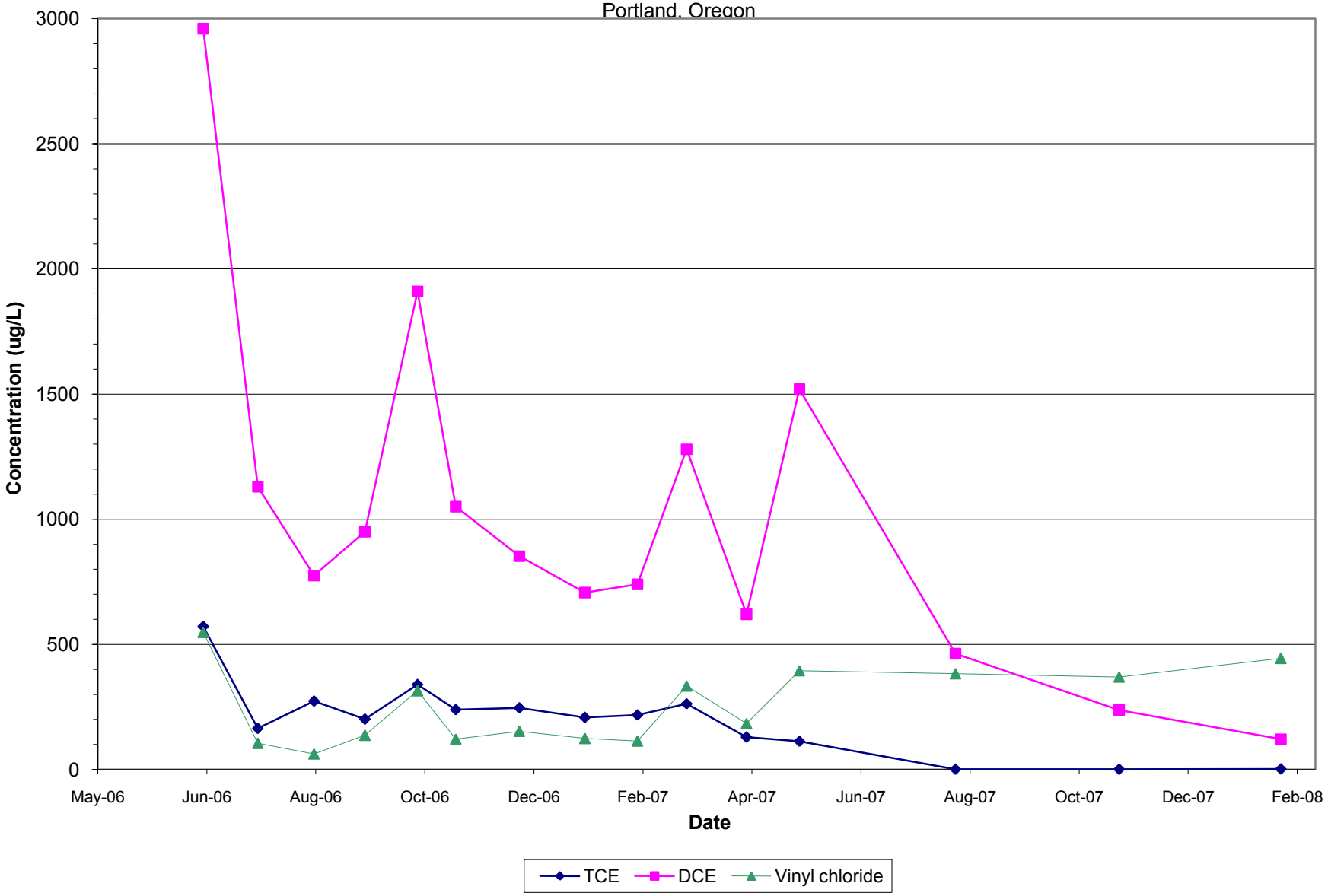
Recent data subject to qualification/revision

Figure 2
cVOCs in Source Area
PRB Wells WS-19-71/101
Siltronic Corporation
Portland, Oregon



Recent data subject to qualification/revision

Figure 3
cVOCs in Riverbank Groundwater
WS-21-112 - Upgradient of PRB
Siltronic Corporation
Portland, Oregon



Recent data subject to qualification/revision